Prices Current [*Retail*] of Food Grains and Salt in the Mysore State during the fortnight ending the 15th February 1907.

Quantity per rupee in seer of 80 tolas, *vide* Government of India No. 1—21, dated 10th February 1874

Fortnight ending the 15th February 1907.		Wheat.			Barley.			Rice, best sort.			Rice, common.			Javar or cholam (*Sorghum vulgare*).			Bajra or kambu (*Pennisetum typhoideum.*)			Marua or ragi (*Eleusine Coracana.*)		
No.	District.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
		S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.	S. c.
1	Bangalore	8 0	8 0	11 2	* *	* *	* *	6 0	6 0	7 0	7 0	7 0	8 0	* *	* *	* *	* *	* *	* *	14 0	15 0	15 0
2	Kolar ...	8 0	8 0	8 0	7 8	7 8	8 0	6 8	6 8	7 0	9 0	9 0	7 8	12 0	* *	* *	16 0	* *	* *	15 0	15 0	18 0
3	Tumkur ...	6 12	7 0	7 0	7 0	7 4	7 0	7 0	7 8	6 8	10 0	9 0	8 0	20 0	18 0	14 0	* *	* *	* *	13 5	14 5	14 0
4	Mysore ...	6 13	6 13	7 0	5 9	5 9	* *	9 0	9 0	7 8	9 0	10 0	8 0	* *	* *	* *	* *	* *	* *	16 0	16 0	16 0
5	Hassan ...	8 0	8 0	10 0	7 10	7 10	8 0	9 0	9 0	8 0	10 0	10 0	9 0	21 0	20 0	17 0	* *	* *	* *	19 14	18 14	14 11
6	Shimoga...	8 6	8 6	8 6	* *	8 6	* 8	10 0	9 7	8 6	12 0	12 0	9 7	21 0	17 0	14 0	* *	* *	* *	17 0	18 0	16 0
7	Kadur ...	8 0	8 0	8 0	8 0	8 0	11 0	9 0	8 0	8 0	11 0	10 0	9 0	17 0	17 0	17 0	* *	* *	* *	16 0	16 0	16 0
8	Chitaldrug	7 0	7 0	8 0	7 0	7 0	8 0	8 0	8 0	7 0	9 0	9 0	8 0	20 0	16 0	17 0	20 0	20 0	16 0	15 0	16 0	16 0
	Average ..	7 10	7 10	8 7	7 2	7 5	8 13	8 1	8 0	7 7	10 [illegible]	9 8	8 8	17 5	18 0	15 9	18 0	18 0	16 0	15 14	15 14	15 9

not available.

Prices Current [*Retail*] of Food Grains and Salt in the Mysore State during the fortnight ending the 15th February 1907—*concld.*

Quantity per rupee in seer of 80 tolas, *vide* Government of India No. 1—21, dated 10th February 1874.

Fortnight ending.	No.	District	Kangni or kakum Italian millet (*Setaria Italica.*)						Gram, chonna, chola, kadale or sunage (*Circor Arietinum.*)						Indian-corn or maize (*Zea Mays.*)						Arhar or Thur-cadjan pea (*Cajanus Indicus.*)						Arhar Dal.						Salt.						Remarks
			Present return.		Next preceding return.		Corresponding return of last year.		Present return.		Next preceding return.		Corresponding return of last year.		Present return.		Next preceding return.		Corresponding return of last year.		Present return.		Next preceding return.		Corresponding return of last year.		Present return.		Next preceding return.		Corresponding return of last year.		Present return.		Next preceding return.		Corresponding return of last year.		
			24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42
			S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	S.	c.	
15th February 1907.	1	Bangalore	*	*	*	*	*	*	9	0	9	0	9	11	3 maizes for 4 pies.		3 maizes for 4 pies.		3 maizes for 4 pies.		10	0	10	0	15	3	7	0	7	0	8	0	13	8	13	8	14	6	
	2	Kolar ...	*	*	*	*	*	*	9	8	9	8	9	0	*	*	*	*	*	*	*	*	*	*	*	*	7	2	9	0	8	0	15	0	15	0	15	0	
	3	Tumkur ..	*	*	*	*	*	*	8	0	8	0	9	0	*	*	*	*	*	*	12	0	13	0	12	0	7	12	8	0	8	0	14	0	14	0	13	0	
	4	Mysore ...	*	*	*	*	*	*	8	6	8	6	8	4	*	*	*	*	*	*	7	8	7	8	14	0	6	4	6	4	11	0	15	3	15	3	14	0	
	5	Hassan ..	*	*	*	*	*	*	8	0	8	12	9	0	*	*	*	*	*	*	10	0	10	0	14	0	7	0	7	0	10	0	14	0	14	0	12	0	
	6	Shimoga..	*	*	*	*	*	*	9	7	9	7	9	7	*	*	*	*	*	*	*	*	*	*	*	*	7	8	8	6	8	6	15	13	15	13	14	11	
	7	Kadur ...	*	*	*	*	*	*	8	0	8	0	9	0	*	*	*	*	*	*	12	0	12	0	12	0	8	0	8	0	9	0	14	0	14	0	14	0	
	8	Chitaldrug	20	0	20	0	20	0	9	0	8	0	9	0	*	*	*	*	*	*	16	0	14	0	14	0	8	0	8	0	8	0	12	0	12	0	10	0	
		Average...	20	0	20	0	20	0	8	10	8	10	9	1	3 maizes for 4 pies		3 maizes for 4 pies.		3 maizes for 4 pies.		11	4	11	1	13	8	7	5	7	15	8	13	14	3	14	3	13	6	

* Article not available.

By Order,
K. S. CHANDRASEKHARA AIYAR,
Secy. to Govt., Gen. & Rev. Depts

GOVT. OF H. H. THE MAHARAJA OF MYSORE, GEN. AND REV. SECRETARIAT,
Dated Bangalore, the 26th February 1907.

Proceedings of the Government of His Highness the Maharaja of Mysore.

READ—

Correspondence ending with letter No. 541, dated the 1st December 1906, from the Agricultural Chemist in Mysore, submitting a report of his observations in connection with the Rubber Exhibition held in Ceylon in September last, which he was deputed to visit.

CEYLON RUBBER EXHIBITION.

The Ceylon Rubber Exhibition was held in the Botanic Gardens at Peradeniya from September 13th to September 27th.

RUBBER.

The exhibits comprised a large display of Para rubber, a fair collection of Ceara rubber and Rambong (Ficus elastica) and a little Castilloa. Among the rubbers exhibited were also a collection of "Rubbers of the World" sent by Messrs. Figgis & Co., consisting of the various forms of "wild" rubbers on the London market, various articles manufactured out of rubber such as hose, belting, tubing, sheets, motor tires, &c., and a collection of samples illustrating a new method of vulcanisation.

The Federated Malay States had undoubtedly the largest display of rubber and had their products nicely arranged along the centre of one of the wings of the Main Building. The Ceylon exhibits were much smaller in bulk though larger in number and lacked as a rule the imposing appearance possessed by the exhibits of their Chief competitor; two very notable exceptions were a fine display from Culloden Estate and a smaller display from the neighbouring estate of Arapolakanda. The few Indian samples of rubber were crowded together in one *little* corner and with the exception of the Hawthorn estate there was no attempt made at displaying them. The Indian collections comprised specimen of the four kinds of rubber named above. The highest recognition any of these rubbers received when in competition with those produced in other parts of the world was "honorable mention" given to the Hawthorn Estate samples when competing for the special prize for the best rubber grown [illegible]000 feet. The same exhibit carried off the special prize for "the best rubber from [illegible] There were no exhibits from Travancore or Assam, the only two localities where rubber is grown to any extent in India at present.

The rubber produced in Ceylon received most of the prizes awarded in classes open to the whole world. This undoubtedly indicates that in the opinion of the judges the Ceylon rubber at the Exhibition was of better quality than that produced elsewhere. And as the judges were representatives sent out by some of the leading London brokers their opinion must indicate the requirements of the market. It is generally admitted that in Ceylon Rubber trees do not grow as rapidly as those in the Federated Malay States. And the general impression is that in India Para rubber will not grow as rapidly as it does in Ceylon. But even if this should be the case this fact does not necessarily imply, judged by what the Ceylon Rubber Exhibition has taught, that the quality of rubber produced will not be as good as that produced from trees growing more rapidly. Quality and rapid growth do not necessarily go together.

The Chief Prize at the exhibition, that for the "Best Commercial sample of Rubber" was won by the Lanadron Estate in Johore. It consisted of Para rubber washed by being passed under a continuous stream of water through two rollers going at different speeds. The "crape" rubber thus produced had been dried at a low temperature in a vacum drier and was afterwards pressed into blocks weighing 25 lbs. (about nine inches square and three inches thick) by a large screw press. The advantage claimed for this method of preparing rubber is that the rubber is exposed comparatively little to the oxydising effect of the atmosphere both during the process of manufacture and afterwards. The rapid washing and drying materially shortens the time of exposure during the manufacturing process and being in a large mass after manufacture a relatively very small proportion of the rubber is exposed to the atmosphere. The washing between rollers going at different speeds removes a large quantity of the impurities and the compact form saves space and therefore freight when shipping. Besides the London market has paid more per pound for "block" rubber than for similar rubber not blocked. The advantages of this form of rubber are so many that probably most estates producing any considerable quantity of rubber are likely to adopt that form of preparing it as soon as possible. The largest number of exhibits were in the form of "Biscuits." But it is generally recognised that this form of preparing rubber will only do where comparatively small quantities of rubber are being dealt with. "Sheets" are practically nothing more than a biscuit in the form of a rectangular oblong. The latex is coagulated in a rectangular dish instead of in a circular one. A mangle is generally used for the preparation of sheets while a rolling pin is used when making biscuits.

The best sample of "crape" Para rubber was produced on a large estate in the Kalutara District in Ceylon at an elevation of about 200 feet or less and about ten miles from the coast. It is the only estate, I was told, which had a special rubber factory. The best sample of Para sheet rubber was produced from comparatively young trees on Syston estate at an elevation of about 2,000 feet (1,600 to 2,300) in the neighbourhood of Kandy. On this estate a comparatively small quantity of rubber was being prepared (the trees being mostly too young to be tapped) and the proprietor took the greatest personal care in every detail of the manufacture.

He used a dilute solution of formoline for washing the rubber. This acts as an antiseptic and probably also hardened the rubber. The sheets were dried under a cover of some red fabric, so as to keep out the chemically active rays of light. This sample of rubber was surprisingly light in color and both strong and resilient and was with the exception of one or two samples (the Lanadron block and perhaps the Duckwari biscuits) probably the sample most admired at the Exhibition. I had the privilege of visiting the estates on which these samples were produced. The best Para biscuits, those from Duckwari estate were produced from trees growing at an elevation of 2,300 to 2,500 feet. As neither Syston nor Duckwari estates competed for the prize in crape rubber, but Culloden estate which took the prize for crape competed for the prize in both the other classes (biscuit and sheet) the awards at the Ceylon Exhibition appear to indicate that the rubber grown at the higher elevation was of better quality than that grown near the sea level.

The best sample of Ceara sheet rubber at the Exhibition was also grown near Kandy at an elevation of about 1,500 or 2,000 feet. In quality it was very little, if any, inferior to the best Para sheet, equally light in color and as far as I could judge as strong and resilient. The manager of this estate from which the sample of rubber came claims to have had but little difficulty in tapping the Ceara trees. But there was no tapping going on on that estate (or, as far as I could learn, on any other Ceara rubber estate) at the time of the Exhibition and owing to the ill-health of the manager, I was unable to even see the trees which had produced this sample. A large number of Ceara trees in the neighbourhood of Kandesalle which had been heavily tapped (probably some months before) were healing up nicely and showed no signs of having been materially hurt by the operation notwithstanding that the cambium layer had been cut. The general opinion in regard to Ceara rubber appeared to be that it had hardly had a fair chance before being cut out some time before the present boom in rubber began.

Of Castilloa rubber there were very few exhibits. I have only seen five or six samples most of which were not for competition. The official list gives only two exhibits under this class. The rubber contains a very large percentage of resin and the latex is difficult to collect.

In the class "Rambong" (rubber from Ficus elatica) on exhibition, nearly all came from the Federated Malay States. The only exception was one sample from Bellary. The objections I have heard raised against this species of rubber tree is that it spreads over a large area and is comparatively difficult to tap.

The exhibit of wild rubbers was particularly interesting on account of the strength and especially the resiliency of these rubbers when compared with most of the plantation rubber on exhibit. Numerous theories were advanced to account for this. Some claimed that it was due to the wild rubbers not being dried so much, others to their being dried in smoke containing acetic acid and *Kreosote* (a preservative), again others attributed it to the impurities retained in the wild rubbers which were washed out of the plantation rubber, while a few thought that it should be ascribed to the trees in America being older when tapped. But although all these assertions were made with all seriousness and discussed at some length in a serious manner at the meetings held in conjunction with the exhibition there was not a single argument brought forward to substantiate any of these statements excepting the last one claiming that it was due to the age of the trees. But notwithstanding that it is generally admitted that old Para trees give a better quality of rubber than younger ones, no theory for accounting for the admitted difference in quality appeared to have as few adherents as that one.

One of the most interesting, if not the most interesting, exhibit in the rubber section was the collection of samples illustrating Mr. Bamber's new method of adding the sulphur required for the vulcanisation of rubber to the latex in solution and after mixing both intimately, precipitating the sulphur at the time of coagulating the latex. But as this belongs more to the manufacturing side of the industry than the agricultural side of it I shall not enter into details notwithstanding that it will probably revolutionise the method of vulcanisation of rubber when the plantation rubber is produced in a sufficiently large quantity to form a considerable portion of the world's supply. (If I am not mistaken the plantation rubber supplies at present less than 2 per cent of this demand.)

Tapping Implements.

Of these there was a very large collection. But as might be expected nearly all of them were specially designed for tapping Para Rubber trees. The competition was so keen that instead of one Gold and one Silver medal being given for "Instruments for tapping Para Rubber trees" two Gold medals and a Silver medal were given. The Bowman-Northway tapping knives and the Miller tapping knives both receiving a Gold medal; the Macadam, and the Bowman-Northway prickers getting a Silver medal. These are all very simple instruments not likely to get out of order. All of them have guards to prevent cutting and pricking too deeply if properly handled.

The implements for tapping Ceara trees had, it appeared to me, not received nearly the same attention and were principally duplicates of the Para Rubber tapping implements. The Gold medal was withheld.

A considerable number of devices for collecting the latex from different trees into one cup, a rubber band twisted around the trees to form a spiral groove for the latex to flow in when tapping thin barked trees, such as Ceara, and several other devices which had evidently never been tried in practice, were on exhibition but did not appear to me to be very practical. "Drip tins" of various shapes and designs to assist the latex in running into the cups and several kinds of collecting cups were on exhibition. But as the "Drip tins" are not likely to be used when tapping is done on a large scale and the collecting cups are very simple little things no description of them is needed.

Machinery.

A. Rubber Machinery.—This consisted chiefly of washing machines, macerators to recover the rubber contained in shaving, etc., a centrifugal to accelarate coagulation, centrifugals used as strainers to remove chips, etc., from latex, mangles for making sheet rubber, tanks for storing latex to keep it in a liquid condition, an apparatus for smoking the latex instead of the finished biscuits, sheets, etc., and a press for making block rubber.

The washing machines and macerators consisted of two horizontal parallel rollers grooved in various ways generally one roller revolving at a higher speed than the other. The rubber to be washed or the bark shavings to be macerated were passed between these rollers with a stream of water playing on the rubber or the shaving all the time they passed through the rollers. To save loss of rubber in the macerating machines the waste water carrying with it the shavings and rubber had to pass through a wire netting which separated out the rubber and all but the very finest pieces of bark. These coarser pieces of bark and rubber were passed through the macerator again and again until all the bark had been ground down to a fine powder and had been removed by the waste water and the rubber had been stuck together into a band of "Crape scrap." The washing machines acted on the same principle. The only other machine requiring special mention is the coagulator. This machine consisted of a cylindrical drum with ridges on the inside, fitted with a bottom; suspended from above into this cylinder were fans which helped to churn up the latex when the outside drum was revolved at a high speed. The latex was put into the drum, a small but definite quantity of acetic acid was added and the drum set in motion. The latex was coagulated in a few minutes.

B. Other machines and appliances.—Among these were a large grass oil still, a small grass oil refining still, a small saw cotton gin and a camphor still. All but the grass oil refining still were working at some time or other during the exhibition.

Various models of rubber drying houses were also on exhibition.

Other Exhibits.

The Agricultural Association of Ceylon had various general exhibits embracing grains, ...lses, dyestuffs and fertilizers. The Forest Department had a large and splendid collection ... woods. The Government Entomologist showed Eri silk worms in all stages of their growth and the silk produced by them. A fine collection of photographs illustrating rubber trees and the various processes in the rubber industry from the planters' standpoint occupied the central portion of one of the three wings of the main building. Large pictures from the "Buried Cities of Ceylon" and the famous mineral Thorionite were also exhibited in this wing. A fine collection of grass oils was of special interest to me.

In a smaller separate buildings were displayed the various native arts and industries; silversmiths, brass workers, lacquer workers and lace makers and others were at work during the entire time of the Exhibition. Most of the arts and industries represented are said to have sufferred much from Indian competition. On the whole the work done at the Exhibition was not equal to similar work I have seen in India.

Buildings.

The main building was a handsome structure of three wings built in the Kandian style. Of the other buildings the Refreshment room and the Industrial and Arts building were also in Kandian style but not nearly so large or ornamental. The machinery building consisted of several long iron sheds generally used by the Ceylon Agricultural Association for their exhibitions. There was a special tent for housing the motor cars used by visitors in going to and from the Exhibition.

Lectures.

One of the chief attractions to the visitors at the Exhibition was a course of ten lectures delivered by the Peradeniya staff and the Judges. These were on Rubber and Cotton cultivation, Rubber in South India, Vulcanisation of Rubber, prevention of disease, Camphor, Rubber in London, Rubber in the Malay Peninsula, Rubber shipment to London, and Tobacco cultivation in Sumatra. Some practical demonstrations in rubber tapping were also given. These lectures with the discussions following them are given in full in the Official Record of the Ceylon Rubber Exhibition.

Regarding the scope of the Rubber Industry for Mysore I may say that I have seen or heard nothing while in Ceylon which would indicate that Para Rubber could not be grown successfully in portions of the malnad of our State. According to the statement made by some of the visitors to the Exhibition, Para can stand more drought than coffee. But whether the latex will flow during the dry hot weather I have not been able to find out. I should be inclined to think it would not. Para can certainly be grown to advantage at a height of 3,000 ft. in Ceylon and the temperature in Ceylon is for the same elevation much lower than in Southern India. The popular belief that Para will grow to advantage only on alluvial soil near the sea level has of course been exploded sometime ago. Both in the Matale and Kalutara Districts Para Rubber seems to love a rocky soil. In the latter districts numerous new clearings had been opened, on steep rocky hill tops a few hundred feet above sea level and these clearings seemed to be doing wonderfully well. These hill tops, on which the soil had not been considered good enough for planting tea, had been completely covered with jungle. This jungle was completely cleared before planting the rubber. On some Estates the rubber is planted between the tea. But where the rubber is planted close, the tea gradually goes out as the rubber grows up.

Much difference of opinion exists as to the distance rubber should be planted apart. Close planting 10 ft. × 10 ft. appears to have been popular at one time but the tendency now appears to be in favor of planting further apart. Distances 12′ × 12′; 10′ × 15′; 15′ × 15′; 15′ × 20′; and 20′ × 20′ were met with on estates visited. The system of planting close and trying to kill out alternate trees by excessive tapping was condemned by the Mycologist and the Entomologist of the Ceylon Government as in their opinion this practice would tend to spread disease.

Ceara rubber was not grown to any large extent. The difficulty in tapping appears to be its chief drawback. According to some reports the trees are very liable to die when the Cambium layer is in any way injured during the tapping operations. But on one estate visited were a considerable number of trees which have been heavily tapped and in which the Cambium layer had been badly injured. The injured portions were however being rapidly covered over by fresh growth from all sides, and the trees appeared to have received no permanent injury. Undoubtedly the tapping of Ceara Rubber ought to be carefully studied. There is some possibility that those Ceara trees which die from tapping are not killed by the injuries received as such, but that these injuries simply make it possible for disease germs to enter. It has also been suggested that stripping off the entire outer bark as is generally done before tapping Ceara trees, may be both unnecessary and harmful. The entire question of tapping Ceara needs careful investigation. If that difficulty can be successfully overcome there seems to be some prospect that at least some parts of the maidan of Mysore may grow Ceara rubber successfully.

No. R. 6527-8—AGRI. 11-06-9, DATED BANGALORE, 5TH JANUARY 1907.

ORDER THEREON.—Recorded.

2. The report will be published in the official Gazette for general information.

3. The Revenue Commissioner will arrange for the publication of extracts of important paragraphs of the report in the Revenue and Agricultural Gazette.

K. S. CHANDRASEKHARA AIYAR,
Secy. to Govt., Gen. & Rev. Depts.

To—The Agricultural Chemist in Mysore.
The Revenue Commissioner in Mysore.
The Deputy Commissioners of Districts.